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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
09/194,598	11/30/98	DELESALLE L	065691/0145

HM12/1107

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EXAMINER	
KIMBALL,M	
ART UNIT	**PAPER NUMBER**
1638	9

DATE MAILED: 11/07/00

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trad marks

Office Action Summary

Application No.	Applicant(s)
09/194,598	Delesalle et al.
Examiner	**Group Art Unit**
Melissa Kimball	1638

☒ Responsive to communication(s) filed on *Aug 17, 2000*

☐ This action is **FINAL.**

☐ Since this application is in condition for allowance except for formal matters, **prosecution as to the merits is closed** in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

A shortened statutory period for response to this action is set to expire *3* month(s), or thirty days, whichever is longer, from the mailing date of this communication. Failure to respond within the period for response will cause the application to become abandoned. (35 U.S.C. § 133). Extensions of time may be obtained under the provisions of 37 CFR 1.136(a).

Disposition of Claim

☒ Claim(s) *1-11* is/are pending in the applicat

Of the above, claim(s) *2 and 3* is/are withdrawn from consideration

☐ Claim(s) _____ is/are allowed.

☒ Claim(s) *1 and 4-11* is/are rejected.

☐ Claim(s) _____ is/are objected to.

☐ Claims _____ are subject to restriction or election requirement.

Application Papers

☐ See the attached Notice of Draftsperson's Patent Drawing Review, PTO-948.

☐ The drawing(s) filed on _____ is/are objected to by the Examiner.

☐ The proposed drawing correction, filed on _____ is ☐ approved ☐ disapproved.

☐ The specification is objected to by the Examiner.

☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119

☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).

☐ All ☐ Some* ☒ None of the CERTIFIED copies of the priority documents have been

☐ received.

☐ received in Application No. (Series Code/Serial Number) _____.

☐ received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

*Certified copies not received: _____

☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

Attachment(s)

☒ Notice of References Cited, PTO-892

☐ Information Disclosure Statement(s), PTO-1449, Paper No(s). _____

☐ Interview Summary, PTO-413

☐ Notice of Draftsperson's Patent Drawing Review, PTO-948

☐ Notice of Informal Patent Application, PTO-152

--- SEE OFFICE ACTION ON THE FOLLOWING PAGES ---

DETAILED ACTION

Election/Restriction

1. Applicant's election of Group I. in Paper No. 8 is acknowledged. Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)).

PCT Documents

2. Priority documents for PCT/FR98/00944 were inappropriately included in the instant application file. They have been removed.

Claim Rejections - 35 USC § 101

3. 35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claim 10 is rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter. The claim is drawn to the use of a genetic sequence to confer CMS to a plant. It is unclear what, if any, physical steps are embraced in this language.

Claim Rejections - 35 USC § 112

4. Claims 1 and 4-9 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The claims are vague and indefinite in that they are drawn to a recombinant plant genome which comprises specific genes from chicory and a sunflower sequence orf 522. The claims read broadly on a chimeric genome comprising DNA from a multitude of genetic sources encoding all of the enzymes and proteins necessary for plant life. The specification teaches only the sequences of two primers for use in identifying the orf 522 sequence and does not describe any other genes of sunflower or chicory. There is no known or disclosed method of determining which portion of two plant genomes will be incorporated in the genome of a cybrid resulting from protoplast fusion and there is no "specific" chicory gene taught. One skilled in the art would not recognize from the disclosure the metes and bounds of the claimed recombinant genome.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless --
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 4-5, and 7-10 are rejected under 35 U.S.C. 102(b) as being anticipated by Rambaud et al. (1994).

Claims are drawn to a recombinant plant genome, cytoplasm or cell comprising chicory genes and the sunflower orf 522 sequence and to methods of producing cytoplasmic male sterile (CMS) plants comprising genetic material from sunflower and chicory.

Rambaud et al. teach protoplast fusion of chicory (*Cichorium intybus*) and CMS sunflower (*Helianthus annuus*) to produce male sterile cybrids (Abstract at least). They teach that the cytoplasmic male sterile plants recovered from protoplast fusion comprised recombinant mitochondrial genomes which were made up of both chicory and sunflower genetic material and that the orf 522 DNA fragment from sunflower, known to produce cytoplasmic male sterility in sunflower, was present in the genome of the CMS cybrid.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1 and 4-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rambaud et al. (1994) in view of Rambaud et al. (1993) and Laver et al. (1991).

Claims are drawn to recombinant genome, cytoplasm and cells comprising chicory and sunflower genetic material and further drawn to a method of selecting CMS in Cichorium plants by probing the mitochondrial DNA with at least 10 nucleotides of the orf 522 sequence.

Rambaud et al. (1994) teach protoplast fusion of chicory (*Cichorium intybus*) and CMS sunflower (*Helianthus annuus*) to produce male sterile cybrids (Abstract, at least). They teach that the cytoplasmic male sterile plants recovered from protoplast fusion comprised recombinant mitochondrial genomes which were made up of both chicory and sunflower genetic material and that the orf 522 DNA fragment from sunflower, known to produce cytoplasmic male sterility in sunflower, was present in the genome of the CMS cybrid.

Rambaud et al. (1994) do not teach probing the recombinant genome to select for CMS nor do they teach the sequence of orf 522 (at least in the abstract; awaiting translation of entire article).

Rambaud et al. (1993) teach fusing chicory and sunflower protoplasts to obtain CMS cybrid plants (page 347, col. 2). They teach using specific sequences to probe against the DNA of the parents and cybrids to detect genetic differences among them (page 349, col. 2).

Laver et al. teach that the mitochondrial DNA of sterile and fertile sunflower plants differ (page 185, col. 2) and that hybridization probes *atp*A and *cob* detect these differences (page 186, col. 1). They teach the open reading frame (ORF) c which is 522 base pairs long and unique to sterile sunflower plants (page 187, Fig. 2). Laver et al. teach the sequence of the 522 bp ORF

which matches the instant sequence 100% (page 188, Fig. 3) and they teach a 320 bp *Stu*I-*Ava*I fragment useful to select sterile genomes (page 190, col. 1).

It would have been prima facie obvious to one of ordinary skill in the art at the time the invention was made to produce recombinant chicory plants by fusion with male sterile sunflower to introduce CMS, as taught by Rambaud et al. (1994) and to probe for sequences which are unique to the sterile genome, as taught by each of Rambaud et al. (1993) and Laver et al., to identify and select male sterile cybrids. A skilled artisan would recognize that fragments of the sequence taught by Laver et al. would be useful to select the cybrids which comprise the 522 bp open reading frame associated with sterility in the plants taught by Rambaud et al. (1994) as the method demonstrated with other DNA fragments by Rambaud et al. (1993) successfully recovered sterile cybrids.

GENERAL INFORMATION

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Melissa Kimball whose telephone number is (703) 305-6999. The examiner can normally be reached on weekdays from 9:30 am to 7 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Paula Hutzell, can be reached on (703) 308-4310.

The fax phone number for this Group is (703) 308-4242.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (703) 308-0196.

The Group and/or Art Unit location of your application in the PTO has changed. To aid in correlating any papers for this application, all further correspondence regarding this application should be directed to Group Art Unit 1638.

MLK
November 6, 2000

PAULA K. HUTZELL
SUPERVISORY PATENT EXAMINER